Citation:

Johnston JJ, McGovern SJ. Alcohol related falls: an interesting pattern of injuries. *Emerg Med J.* 2004 Mar;21(2):185-8.

PubMed ID: 14988344

Study Design:

Prospective Cohort Study

Class:

B - Click here for explanation of classification scheme.

Research Design and Implementation Rating:

NEGATIVE: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To compare the pattern and severity of fall related injuries in patients with or without alcohol exposure.

Inclusion Criteria:

- Aged 16-60 years old
- Experiencing a fall from a standing position
- Seen at Ulster Hospital

Exclusion Criteria:

Exclusion criteria not defined.

Description of Study Protocol:

Recruitment : Patients presenting to the Ulster hospital between November 2001 and July 2002 secondary to experiencing injury related to falling. Recruitment occurred only when assessing physician was on duty.

Design : Prospective cohort study (note: differs from authors stated design of prospective quasi-randomized controlled study)

Blinding used (if applicable): not applicable

Intervention (if applicable): not applicable

Statistical Analysis :

- Pattern of injury between Alcohol group and non-Alcohol group was compared using the

Chi-square test.
- Mann-Whitney U test was used to compare Injury Severity Score (ISS) and alcohol use.

Data Collection Summary:

Timing of Measurements:

At time of presentation in the hospital.

Dependent Variables

- Injury pattern
- Injury Severity Score

Independent Variables

- Alcohol consumption based on appearance
- Blood alcohol concentrations for patients giving consent

Description of Actual Data Sample:

Initial N: A total of 351 healthy adults were included. 113 in the Alcohol Consumption group and 238 in the No Alcohol group.

Attrition (final N): as above

Age: not reported

Ethnicity: not reported

Other relevant demographics: not reported

Anthropometrics: not reported

Location: Ulster Hospital, Northern Ireland

Summary of Results:

Key Findings

- 113 had consumed alcohol and blood alcohol intake was obtained for 47
- There was a higher incidence of head (48% vs 9%) vs limb injuries (39% vs 76%) in the Alcohol vs No Alcohol group.
- There was a significant difference in the pattern of injury between the Alcohol and No Alcohol groups ($P < 0.001$) and there was a significant difference in the injury severity scores ($P < 0.001$, $Z = -2.5$).
- In the Alcohol group, severity and pattern correlated with alcohol concentration at the time of injury.
- Patients with an alcohol concentration <2 g/l had mostly soft tissue limb injuries (58%), 2 - 2.5 g/l had mostly significant limb fractures (55%) and >2.5 g/l had mostly significant head

injuries (90%).

Author Conclusion:

Alcohol related falls are more often associated with severe craniofacial injury. The severity of both limb and head injury is greater and correlates with blood alcohol concentration.

Reviewer Comments:

- *The authors categorize the study as a prospective quasi-RCT, which does not fit the design.*
- *Cohort of patients not well described and it is unclear whether or not groups were similar*
- *The study was limited by potential bias as the study was not blinded, relied on the schedule of a single physician and the "appearance" of alcohol consumption.*
- *Calculation of blood alcohol was made based on timing, patient report, and assumed similarity of metabolism among patients.*
- *Explanation of the study and consent obtained in patients "appearing" to have consumed alcohol might not represent informed consent.*

Research Design and Implementation Criteria Checklist: Primary Research

Relevance Questions

1.	Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies)	N/A
2.	Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about?	Yes
3.	Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to nutrition or dietetics practice?	Yes
4.	Is the intervention or procedure feasible? (NA for some epidemiological studies)	N/A

Validity Questions

1.	**Was the research question clearly stated?**	Yes
1.1.	Was (were) the specific intervention(s) or procedure(s) [independent variable(s)] identified?	Yes
1.2.	Was (were) the outcome(s) [dependent variable(s)] clearly indicated?	Yes
1.3.	Were the target population and setting specified?	Yes
2.	**Was the selection of study subjects/patients free from bias?**	No

2.1.	Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study?	???
2.2.	Were criteria applied equally to all study groups?	???
2.3.	Were health, demographics, and other characteristics of subjects described?	No
2.4.	Were the subjects/patients a representative sample of the relevant population?	No
3.	**Were study groups comparable?**	???
3.1.	Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT)	Yes
3.2.	Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline?	???
3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	Yes
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	???
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	N/A
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
4.	**Was method of handling withdrawals described?**	???
4.1.	Were follow-up methods described and the same for all groups?	No
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or response rate (cross-sectional studies) described for each group? (Follow up goal for a strong study is 80%.)	???
4.3.	Were all enrolled subjects/patients (in the original sample) accounted for?	???
4.4.	Were reasons for withdrawals similar across groups?	???
4.5.	If diagnostic test, was decision to perform reference test not dependent on results of test under study?	N/A
5.	**Was blinding used to prevent introduction of bias?**	N/A

5.1.	In intervention study, were subjects, clinicians/practitioners, and investigators blinded to treatment group, as appropriate?	N/A
5.2.	Were data collectors blinded for outcomes assessment? (If outcome is measured using an objective test, such as a lab value, this criterion is assumed to be met.)	???
5.3.	In cohort study or cross-sectional study, were measurements of outcomes and risk factors blinded?	???
5.4.	In case control study, was case definition explicit and case ascertainment not influenced by exposure status?	N/A
5.5.	In diagnostic study, were test results blinded to patient history and other test results?	N/A
6.	**Were intervention/therapeutic regimens/exposure factor or procedure and any comparison(s) described in detail? Were interveningfactors described?**	Yes
6.1.	In RCT or other intervention trial, were protocols described for all regimens studied?	N/A
6.2.	In observational study, were interventions, study settings, and clinicians/provider described?	Yes
6.3.	Was the intensity and duration of the intervention or exposure factor sufficient to produce a meaningful effect?	N/A
6.4.	Was the amount of exposure and, if relevant, subject/patient compliance measured?	N/A
6.5.	Were co-interventions (e.g., ancillary treatments, other therapies) described?	N/A
6.6.	Were extra or unplanned treatments described?	N/A
6.7.	Was the information for 6.4, 6.5, and 6.6 assessed the same way for all groups?	N/A
6.8.	In diagnostic study, were details of test administration and replication sufficient?	N/A
7.	**Were outcomes clearly defined and the measurements valid and reliable?**	???
7.1.	Were primary and secondary endpoints described and relevant to the question?	Yes
7.2.	Were nutrition measures appropriate to question and outcomes of concern?	Yes
7.3.	Was the period of follow-up long enough for important outcome(s) to occur?	Yes
7.4.	Were the observations and measurements based on standard, valid, and reliable data collection instruments/tests/procedures?	No
7.5.	Was the measurement of effect at an appropriate level of precision?	???
7.6.	Were other factors accounted for (measured) that could affect outcomes?	???

	7.7.	Were the measurements conducted consistently across groups?	???
8.	**Was the statistical analysis appropriate for the study design and type of outcome indicators?**		Yes
	8.1.	Were statistical analyses adequately described and the results reported appropriately?	Yes
	8.2.	Were correct statistical tests used and assumptions of test not violated?	Yes
	8.3.	Were statistics reported with levels of significance and/or confidence intervals?	Yes
	8.4.	Was "intent to treat" analysis of outcomes done (and as appropriate, was there an analysis of outcomes for those maximally exposed or a dose-response analysis)?	N/A
	8.5.	Were adequate adjustments made for effects of confounding factors that might have affected the outcomes (e.g., multivariate analyses)?	???
	8.6.	Was clinical significance as well as statistical significance reported?	Yes
	8.7.	If negative findings, was a power calculation reported to address type 2 error?	N/A
9.	**Are conclusions supported by results with biases and limitations taken into consideration?**		???
	9.1.	Is there a discussion of findings?	Yes
	9.2.	Are biases and study limitations identified and discussed?	No
10.	**Is bias due to study's funding or sponsorship unlikely?**		Yes
	10.1.	Were sources of funding and investigators' affiliations described?	Yes
	10.2.	Was the study free from apparent conflict of interest?	Yes